

Lithium-induced enlargement of a lingual thyroid

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ABSTRACT

Lingual thyroid is a rare developmental anomaly. It is the result of failure of the thyroid to descend from the foramen caecum to its prelaryngeal site. Lithium is a known goitrogen, but has never been reported to cause symptomatic enlargement of the lingual thyroid. We describe a 40-year-old woman, who presented with a foreign body sensation and progressive dysphagia caused by an ectopic lingual thyroid tissue measuring 4 cm x 3 cm x 3.5 cm. She had been taking lithium for treatment of bipolar disorder and had hypothyroidism. Her symptoms were relieved after excision of the ectopic thyroid tissue.

Keywords: dysphagia, ectopic thyroid, goitrogen, lithium, lingual thyroid, thyroid gland.

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INTRODUCTION

Lingual thyroid is a rare congenital anomaly caused by the failure of the thyroglossal duct to migrate from the foramen caecum to the usual prelaryngeal site.⁽¹⁾ Lingual thyroid occurs in one in 100,000 individuals; but the true incidence is not known, since many patients are asymptomatic until later on in life, or cases are not presented for medical treatment.^(2,3) We report a woman who developed symptomatic enlargement of lingual thyroid, after taking lithium for treatment of bipolar disorder. On investigation, it was found that the lingual thyroid was the only functional thyroid tissue present. To the best of our knowledge, there is no report in literature in which an enlarged lingual thyroid occurred after intake of lithium. The literature is reviewed regarding the incidence and diagnosis of lingual thyroid, with possible treatment options discussed.

CASE REPORT

A 40-year-old woman was referred to us from the psychiatry department of our hospital. She had an eight-month history of a foreign body sensation at the back of her tongue and progressive dysphagia. She had been taking lithium carbonate for two years for the treatment of bipolar disorder. Oropharyngeal examination revealed a mass of 4 cm x 3 cm on the posterior third of the tongue, posterior to the circumvallate papillae. The overlying mucosa was regular and there was no palpable cervical lymph node.

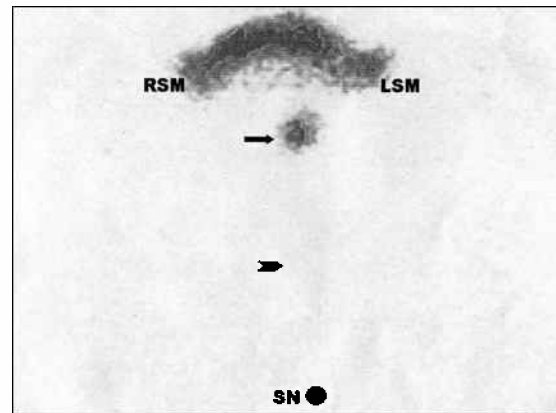


Fig. 1 Tc-99m pertechnetate thyroid scan shows no activity in the normal thyroid position (arrowhead). The lingual thyroid is clearly seen at the level of the mouth (arrow). RSM: right submandibular salivary gland; LSM: left submandibular salivary gland; SN: sternal notch.



Fig. 2 Contrast-enhanced CT image shows a mass in the posterior aspect of the tongue (arrows).



Fig. 3 Contrast-enhanced CT image of the neck shows the absence of thyroid gland at the prelaryngeal site.

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Fine-needle aspiration cytology of the mass revealed normal thyroid tissue. Thyroid function tests revealed a low triiodothyronine (FT3) and thyroxine (FT4), and an elevated thyroid-stimulating hormone (TSH). Technetium-99m pertechnetate scan showed there was no activity in the normal thyroid position with focal concentration in the root of the tongue, (Fig. 1). Contrast-enhanced computed tomography (CT) of the head and neck revealed a 4 cm × 3 cm × 3.5 cm mass in the posterior part of the tongue, and there was no evidence of the thyroid gland in the neck (Figs. 2 & 3).

Ectopic lingual thyroid with hypothyroidism was diagnosed and she was commenced on thyroxine therapy at 100 µg/day. On our advice, the treating psychiatrist replaced lithium carbonate with valproic acid, with no adverse effects on psychiatric symptoms. After eight weeks of thyroxine replacement, the patient became euthyroid but there was no decrease in the size of the lingual thyroid mass and the patient still complained of dysphagia. The patient underwent a transoral excision of the mass. The postoperative period was uneventful and the patient was discharged on thyroxine 100 µg/day. After two years of follow-up, the patient remains euthyroid and asymptomatic, and is being continued on thyroxine.

DISCUSSION

The incidence of lingual thyroid is greatest in the third decade of life. It is three to four times more common in females.⁽³⁾ 90% of all ectopic thyroid tissues are found in the tongue.⁽³⁾ Ectopic lingual thyroid may be the only functioning thyroid tissue in approximately 70% of patients.⁽⁴⁾ The majority of these glands reveal histological normal thyroid tissue.⁽⁵⁾ Most patients are asymptomatic. The symptoms include cough, pain, dyspnoea, dysphonia, dysphagia, and haemorrhage. Respiratory obstruction and hemorrhage may be life-threatening.⁽⁵⁾ The symptoms most commonly occur during puberty, pregnancy or menopause, when raised levels of TSH cause hypertrophy of the gland.⁽³⁾ All disorders affecting thyroid glands in normal positions, such as thyroid adenoma, hyperplasia, inflammation and carcinoma, can also affect the ectopic thyroid glands.⁽³⁾

Lithium inhibits thyroid function, leading to clinical hypothyroidism and goitre.⁽⁶⁾ It is believed to increase antithyroid antibodies, and inhibits iodine uptake into the thyroid, iodination of tyrosine and release of thyroid hormones. It also blocks thyroid-stimulating effects of TSH through interference with adenylate cyclase. Approximately 30% of patients receiving lithium will have an elevated TSH level during treatment, and

approximately one-sixth of these will go on to develop frank hypothyroidism.⁽⁶⁾ Radionuclide technetium-99m and iodine-131 thyroid scans are the most important methods for diagnosis of ectopic lingual thyroid tissue. Radiological investigations, such as grey-scale ultrasonography, CT and magnetic resonance imaging, have improved the presurgical evaluation of such cases.⁽³⁾ Although the normal thyroid gland shows more enhancement, fine-needle aspiration cytology of the mass is accurate for diagnosis.⁽⁷⁾

Treatment of ectopic thyroid depends on the clinical presentation, such as size and presence of symptoms. Euthyroid and asymptomatic patients are followed-up regularly. If the patient is hypothyroid, symptoms may be treated with supplemental thyroxine.⁽⁵⁾ Thyroxine suppresses TSH stimulation and minimises goitrous enlargement.⁽²⁾ Indications of surgery include severe obstructive symptoms and complications, such as ulceration, bleeding, cystic degeneration, or malignancy.⁽⁷⁾ Many surgical approaches have been reported. The transoral route, despite being criticised for providing limited exposure, is effective for small lesions.⁽⁵⁾ The decreased postoperative morbidity achieved is enhanced by using the CO₂ laser.⁽⁷⁾ Other surgical approaches include the lateral pharyngotomy, suprahyoid and transhyoid techniques, and for larger lesions, the midline mandibular split.^(2,3) All afford greater exposure and control of haemostasis. Postoperative thyroxine replacement is required in patients in whom lingual thyroid is the only functional thyroid tissue.⁽³⁾ Lingual thyroid ablation with radioactive iodine-131 is an alternative method of treatment. Its disadvantages are: slow response to medication, fibrosis and dependence on lifelong thyroid hormone replacement. It is reserved as an alternative to surgery, for those unfit for surgery or who refuse surgery.⁽³⁾

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